

WHAT IS CLAIMED IS:

1. An adjusting method of a button attaching apparatus which has: a first die capable of receiving one of a pair of button components and located on a predetermined advancement-retraction axis line; a second die capable of receiving the other of the pair of button components and located on the advancement-retraction axis line opposing the first die; a first side portion having a first holder supporting the first die in an attachable and detachable manner and in a manner movable along the advancement-retraction axis line; a second side portion having a second holder supporting the second die in an attachable and detachable manner; a drive mechanism provided at least one of the first side portion or the second side portion for moving the first holder or the second holder toward and away from each other along the predetermined advancement-retraction axis line; a first cushion provided on the first side portion for biasing the first die toward the second die; and a first cushion adjuster for adjusting the biasing force of the first cushion, the method comprising the steps of:
 - providing a first adjusting jig and a second adjusting jig, at least one of the first adjusting jig and the second adjusting jig being attached with a force gauge;
 - setting the first adjusting jig and the second adjusting jig to the first holder and the second holder instead of the first die and the second die;
 - adjusting a relative position of the first holder and the second holder so that a force measured by the force gauge becomes a predetermined value by mutually pressing the first adjusting jig and the second adjusting jig by bringing the first holder and the second holder closest with each other while the first cushion is disabled; and
 - adjusting the first cushion adjuster so that the force measured by the force gauge becomes a predetermined value by mutually pressing the first adjusting jig and the second adjusting jig by bringing the first holder and the second holder closest with each other while the first cushion is enabled.
2. An adjusting method of a button attaching apparatus which has: a first die capable of receiving one of a pair of button components and located on a predetermined advancement-retraction axis line; a second die capable of receiving the other of the pair of button components and located on the advancement-retraction axis line opposing the first

die; a first side portion having a first holder supporting the first die in an attachable and detachable manner and in a manner movable along the advancement-retraction axis line; a second side portion having a second holder supporting the second die in an attachable and detachable manner; a drive mechanism provided at least one of the first side portion or the second side portion for moving the first holder or the second holder toward and away from each other along the predetermined advancement-retraction axis line; a first cushion provided on the first side portion for biasing the first die toward the second die; a first cushion adjuster for adjusting the biasing force of the first cushion; a second cushion being stronger than the first cushion and being provided on the second side portion for biasing the second die toward the first die; and a second cushion adjuster for adjusting the biasing force of the second cushion, the method comprising the steps of:

providing a first adjusting jig and a second adjusting jig, at least one of the first adjusting jig and the second adjusting jig being attached with a force gauge;
 setting the first adjusting jig and the second adjusting jig to the first holder and the second holder instead of the first die and the second die;
 adjusting a relative position of the first holder and the second holder so that a force measured by the force gauge becomes a predetermined value by mutually pressing the first adjusting jig and the second adjusting jig by bringing the first holder and the second holder closest with each other while both of the first cushion and the second cushion are disabled;
 adjusting the second cushion adjuster so that the force measured by the force gauge becomes a predetermined value by mutually pressing the first adjusting jig and the second adjusting jig by bringing the first holder and the second holder closest with each other while the second cushion is enabled and the first cushion is disabled; and
 adjusting the first cushion adjuster so that the force measured by the force gauge becomes a predetermined value by mutually pressing the first adjusting jig and the second adjusting jig by bringing the first holder and the second holder closest with each other while both of the first cushion and the second cushion are enabled.

3. The adjusting method of button attaching apparatus according to claim 2,
 wherein an adjusting jig which is abutted to the second holder so that movement thereof is restricted in the advancement-retraction axis line direction is used as the second adjusting jig for disabling the biasing force of the second cushion.

4. The adjusting method of button attaching apparatus according to claim 2, wherein the second cushion is a mechanical spring.
- 5 5. The adjusting method of button attaching apparatus according to claim 1, wherein an adjusting jig which is abutted to the first holder so that movement thereof is restricted in the advancement-retraction axis line direction is used as the first adjusting jig for disabling the biasing force of the first cushion.
- 10 6. The adjusting method of button attaching apparatus according to claim 1, wherein the first cushion is a mechanical spring.
7. The adjusting method of button attaching apparatus according to claim 1, wherein an adjusting jig having a thin portion on a part thereof is used as either
15 one of the first adjusting jig or the second adjusting jig, and a strain gauge or a piezoelectric gauge is attached to the thin portion.
8. An adjusting jig used for adjusting a button attaching apparatus which has: a first die capable of receiving one of a pair of button components and located on a predetermined
20 advancement-retraction axis line; a second die capable of receiving the other of the pair of button components and located on the advancement-retraction axis line opposing the first die; a first side portion having a first holder supporting the first die in an attachable and detachable manner and in a manner movable along the advancement-retraction axis line; a second side portion having a second holder supporting the second die in an attachable and
25 detachable manner; a drive mechanism provided at least one of the first side portion or the second side portion for moving the first holder or the second holder toward and away from each other along the predetermined advancement-retraction axis line; a first cushion provided on the first side portion for biasing the first die toward the second die; and a first cushion adjuster for adjusting the biasing force of the first cushion,
30 wherein a position adjustment thickness (T0) required for adjusting relative position of the first holder and the second holder and a first adjustment thickness (T1) required for adjusting the biasing force of the first cushion are selectable.

9. The adjusting jig of a button attaching apparatus according to claim 8, further comprising:

a base member having a shaft capable of being attached to the first holder or the second holder and a flange formed on an end of the shaft; and

an additional member formed in a ring capable of being inserted to the shaft and superposed on the flange,

wherein the position adjustment thickness (T0) and the first adjustment thickness (T1) can be formed only with the flange or the superposition of the flange and the additional member.

10. An adjusting jig used for adjusting a button attaching apparatus which has: a first die capable of receiving one of a pair of button components and located on a predetermined advancement-retraction axis line; a second die capable of receiving the other of the pair of button components and located on the advancement-retraction axis line opposing the first die; a first side portion having a first holder supporting the first die in an attachable and detachable manner and in a manner movable along the advancement-retraction axis line; a second side portion having a second holder supporting the second die in an attachable and detachable manner; a drive mechanism provided at least one of the first side portion or the second side portion for moving the first holder or the second holder toward and away from each other along the predetermined advancement-retraction axis line; a first cushion provided on the first side portion for biasing the first die toward the second die; a first cushion adjuster for adjusting the biasing force of the first cushion; a second cushion being stronger than the first cushion and being provided on the second side portion for biasing the second die toward the first die; and a second cushion adjuster for adjusting the biasing force of the second cushion,

wherein a position adjustment thickness (T0) required for adjusting relative position of the first holder and the second holder, a first adjustment thickness (T1) required for adjusting the biasing force of the first cushion, and a second adjustment thickness (T2) required for adjusting the biasing force of the second cushion are selectable.

11. The adjusting jig of a button attaching apparatus according to claim 10, further

comprising:

a base member having a shaft capable of being attached to the first holder or the second holder and a flange formed on an end of the shaft; and

an additional member formed in a ring capable of being inserted to the shaft and
5 superposed on the flange,

wherein the position adjustment thickness (T0), the first adjustment thickness (T1) and the second adjustment thickness (T2) can be formed only with the flange or the superposition of the flange and the additional member.

- 10 12. The adjusting jig of a button attaching apparatus according to claim 9,
wherein any of the additional members is abutted to the first holder or the second holder so that movement thereof is restricted in the direction of the advancement-retraction axis line in order to disable the biasing force of the first cushion or the second cushion, and
wherein the other of the additional members does not interfere with the first holder
15 or the second holder for enabling the biasing force of the first cushion or the second cushion.